

REMARKS

By this Amendment, Applicants have replaced the Abstract of the Disclosure, amended Fig. 7, amended claims 3 and 4, and added new claim 5. No new matter has been added. Claims 1 and 2 have been withdrawn as being directed to non-elected groups of inventions. Claims 3-5 are pending on the merits.

In the Office Action, the Examiner withdrew claims 1 and 2 from consideration as being directed to "nonelected inventions;" acknowledged Applicants' claim for priority; acknowledged consideration of the references cited in the Information Disclosure Statement; objected to Fig. 7; objected to the Abstract of the Disclosure; objected to claim 3; rejected claim 3 under 35 U.S.C. § 102(b) as being anticipated by Brown (U.S. Patent No. 3,502,752); rejected claim 3 under 35 U.S.C. § 102(b) as being anticipated by Meneidis (U.S. Patent No. 3,642,396); rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Burlis et al. (U.S. Patent No. 3,752,617) in view of Clanton et al. (U.S. Patent No. 5,843,503); rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Burlis et al. and Clanton et al. and further in view of Colby et al. (U.S. Patent No. 5,318,357); and rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Burlis et al. and Clanton et al. and further in view of Hanslik (U.S. Patent No. 3,913,897).

With respect to the objection to Fig. 7, Applicants have amended Fig. 7 to include the legend, "PRIOR ART," and have submitted herewith a formal replacement drawing sheet containing amended Fig. 7. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection to Fig. 7.

With respect to the objection to the Abstract of the Disclosure, Applicants have submitted herewith a replacement Abstract of the Disclosure on an attached, separate

sheet, which complies with M.P.E.P. § 608.01(b). Therefore, Applicants respectfully request reconsideration and withdrawal of the objection to the Abstract of the Disclosure.

With respect to the objection to claim 3, the Examiner suggested that claim 3 should be amended such that on line 9, “‘wherein;’ should be changed to -- wherein: -- to be grammatically clearer.” Office Action at 4. Applicants have amended claim 3 so that its format is consistent with U.S. practice. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection to claim 3. If, however, the Examiner does not believe Applicants’ changes are sufficient to overcome the objection, Applicants’ representative cordially invites the Examiner to contact him at the telephone number provided below so that this issue can be resolved.

With respect to the Examiner’s rejections of claim 3 under 35 U.S.C. §§ 102(b) and 103(a), Applicants have amended claim 3, thereby obviating those rejections. To the extent, however, the Examiner considers asserting new rejections based on the Brown, Meneidis, Burlis et al., Clanton et al., Colby et al., and Hanslik references, taken individually or in combination, Applicants respectfully submit that none of those references discloses or suggests all of the subject matter recited in Applicants’ amended independent claim 3.

In order to anticipate a claim, the reference must teach every element of the claim. M.P.E.P. § 2131. Likewise, for a reference or combination of references to render a claim *prima facie* obvious, the reference or references when combined must teach or suggest all of the claim limitations. Id. at § 2142. Because the Brown, Meneidis, Burlis et al., Clanton et al., Colby et al., and Hanslik references, taken individually or in combination, fail to teach or suggest all of the limitations recited in

amended claim 3, they neither anticipate nor render obvious Applicants' amended claim 3.

Applicants' invention as recited in amended independent claim 3 is directed to an apparatus for manufacturing stiffness-taper tubing including a die having an extrusion hole, a die holder for holding the die, and a mandrel which is mounted inside the die holder and fits in the extrusion hole, and which forms stiffness-taper tubing by switching between and supplying resins having different stiffnesses over the mandrel from a plurality of resin-supply ports that are formed in the die holder such that the stiffness gradually changes in the lengthwise direction. A mandrel insertion hole that connects to the extrusion hole is formed in the die holder and the mandrel is mounted in this mandrel insertion hole. The plurality of resin-supply ports open up to a cylindrical space that is formed between the inner surface of the mandrel insertion hole and the outer surface of the mandrel at a position that is separated from the extrusion hole in the die, and the plurality of resins flow together in this cylindrical space. The mandrel in the mandrel insertion hole is formed like a screw having a thread which gradually becomes lower as the thread advances forward.

The Brown, Meneidis, Burlis et al., Clanton et al., Colby et al., and Hanslik references, taken individually or in combination, fail to disclose or suggest at least an apparatus for manufacturing stiffness-taper tubing wherein a mandrel in a mandrel insertion hole is formed like a screw having a thread which gradually becomes lower as the thread advances forward.

Applicants' invention includes a mandrel rather than an extruder screw, which is disclosed in the references relied on by the Examiner in the claim rejections.

Applicants' mandrel includes a thread, rather than for extruding resin, but for mixing

resin, which is forced to flow over the thread by forward pressure from the resin supply port. A mandrel is most often static and may not necessarily rotate so as to guide a paste-like material passing over its outer surface. The mixing of the resin in at least some embodiments of the invention occurs without the mandrel being rotated.

The Brown reference, on the other hand, discloses controlling the dimensions of multiple layers of extruded insulation. Brown discloses that two resins are always supplied at the same time, making a double layer tube (see Fig. 3) wherein the two resin layers are separated without mixing with each other. Brown does not disclose or suggest a mandrel in a mandrel insertion hole that is formed like a screw having a thread which gradually becomes lower as the thread advances forward, as recited in Applicants' amended claim 3.

The Meneidis reference discloses an extrusion head for continuously extruding a compound strand of plastic materials, wherein a first plastic material is helically wound around a second plastic material without being mixed with the second plastic material. Meneidis does not disclose or suggest a mandrel in a mandrel insertion hole that is formed like a screw having a thread which gradually becomes lower as the thread advances forward, as recited in Applicants' amended claim 3.

The Burlis et al. reference discloses a mixing device disposed between two extruders. The mixing device (see Fig. 2) of Burlis et al. has a mandrel. The Burlis et al. mandrel, however, does not include a mandrel in a mandrel insertion hole that is formed like a screw having a thread which gradually becomes lower as the thread advances forward, as recited in Applicants' amended claim 3.

The Clanton et al. reference discloses a die holder combined with a separate die having an extrusion hole. The Clanton et al. reference, however, does not disclose or

suggest a mandrel in a mandrel insertion hole that is formed like a screw having a thread which gradually becomes lower as the thread advances forward, as recited in Applicants' amended claim 3.

The Colby et al. reference discloses a rotating extruder screw installed within a barrel (see, for example, col. 4, lines 41-42). The Colby et al. reference does not disclose or suggest, however, a mandrel in a mandrel insertion hole that is formed like a screw having a thread which gradually becomes lower as the thread advances forward, as recited in Applicants' amended claim 3.

The Hanslik reference discloses a feed screw for an extruder, which is driven to rotate (see, for example, col. 2, lines 53-54). Hanslik does not disclose or suggest a mandrel in a mandrel insertion hole that is formed like a screw having a thread which gradually becomes lower as the thread advances forward, as recited in Applicants' amended claim 3.

Therefore, Applicants' respectfully submit that the Brown, Meneidis, Burlis et al., Clanton et al., Colby et al., and Hanslik references, taken individually or in combination, fail to disclose or suggest at least an apparatus for manufacturing stiffness-taper tubing wherein a mandrel in a mandrel insertion hole is formed like a screw having a thread which gradually becomes lower as the thread advances forward. Accordingly, Applicants' amended independent claim 3 is patentably distinguishable from those references.

Conclusion

For at least the reasons set forth above, Applicants' amended independent claim 3 should be allowable. Dependent claims 4 and 5 depend from independent

claim 3. Consequently, those dependent claims should be allowable for at least the same reasons claim 3 is allowable as well as by virtue their recitation of additional novel and non-obvious subject matter.

Therefore, Applicants respectfully request the reconsideration of this application, the withdrawal of the outstanding objections and claim rejections, and the allowance of claims 3-5.

If the Examiner believes that a telephone conversation might advance prosecution, the Examiner is cordially invited to call Applicants' representative at 571-203-2739.


Applicants respectfully submit that the Office Action contains numerous assertions concerning the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicants respectfully decline to automatically subscribe to them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 6-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 1, 2004

By: 
David W. Hill
Reg. No. 28,220

Attachments: Formal Replacement Drawing Sheet
 Replacement Abstract of the Disclosure